

CAS 123-91-1

Substance name 1,4-Dioxane

Toxicity

1,4-Dioxane is classified as a carcinogen by authoritative sources.¹⁻⁴ Evidence is based on liver tumors in multiple animal species as well as tumors at other sites.^{1,3} There is some evidence that 1,4-dioxane acts as a tumor promoter.^{1,3} 1,4 dioxane has also caused liver and kidney toxicity in laboratory animals and in people who were occupationally exposed.¹

Exposure

1,4-Dioxane is primarily used as a solvent for chemical processing. It is used in the manufacturing of products such as adhesives, cleaning and detergent preparations, cosmetics, deodorant fumigants, emulsions and polishing compositions). It is unintentionally formed as an impurity during the manufacture of alkyl ether sulfates and other ethoxylated substances which are used in consumer products such as cosmetics, detergents, and shampoos.⁶ Testing in the Europe detected 1,4-dioxane in baby lotion, in shampoos and lotions, and in hand dishwashing liquids.⁵ The U.S. FDA has detected 1,4-dioxane in ethoxylated raw materials for cosmetics and in finished cosmetic products including baby shampoos and bubble baths.⁶

References

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2. WHO, International Agency for Research on Cancer (IARC) Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume No 71: Re-evaluation of Some Organic Chemicals, Hydrazine and Hydrogen Peroxide (1999). <http://monographs.iarc.fr/ENG/Monographs/PDFs/index.php>.
3. U.S. DHHS, PHS, National Toxicology Program. Report on Carcinogens, Eleventh Edition. 2005.
<http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s080diox.pdf>.
4. California EPA, Office of Environmental Health Hazard Assessment. List of Chemicals Known to the State to Cause Cancer or Reproductive Toxicity. February 5, 2010.
http://www.oehha.org/prop65/prop65_list/files/P65single020510.pdf.
5. European Commission, Joint Research Centre, Institute for Health and Consumer Protection. European Union Risk Assessment Report: 1,4-Dioxane Final Risk Assessment. 2002.
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6. U.S DHHS, Agency for Toxic Substances & Disease Registry (ATSDR). Toxicological Profile for 1,4-dioxane. September 2007. <http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=199>.